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EXAMINER	
RAHIM, AZIM	

ART UNIT	PAPER NUMBER
3744	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/572,824

Applicant(s)

MCMILLIN, MATTHEW J.

Examiner

Azim Rahim

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 4-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heo (US 5,737,935) in view of Lieberman (US 5,404,935).

Regarding claims 1, 4 and 13, Heo teaches a cooling tube system adapted for use within an interior of a refrigeration apparatus, for facilitating distribution of cooling air within said interior, said cooling tube system comprising: a plurality of cooling conduits disposed within said interior of said refrigerator apparatus (6a and 6b), said plurality of cooling conduits comprising a structural part of at least one refrigerator shelf (explicitly shown in fig. 2; the conduits 6a and 6b are disposed within a barrier, which can be used as a shelf for food items to

be placed upon), cooling air generation means for generating a supply of cooling air (via fan 11 and heat exchanger 12); air flow transmission means (9) positioned so as to receive said supply of cooling air and for transmitting said supply of cooling air to a position adjacent first ends of said cooling conduits, so that at least a certain portion of said supply of cooling air is further transmitted into said first ends of said cooling conduits (explicitly shown in fig. 2); said cooling conduits having second ends opening to said interior of said refrigeration apparatus (right ends of conduits 6a and 6b); said certain portion of said supply of cooling air flowing through said second ends of said cooling conduits, and into said interior of said refrigeration apparatus (col. 1 lines 25-30); and said cooling air having temperature and volume properties sufficient so as to provide an improvement of gradient temperature within said refrigeration apparatus, relative to the state of said interior of said refrigeration apparatus in the absence of said cooling tube system (this system is capable of this improvement), wherein said at least one refrigerator shelf is positioned within a freezer portion of said interior of said refrigeration apparatus (the shelf being disposed inside freezer compartment 4), and said cooling air comprises temperature and volume properties sufficient so as to provide for an improvement in freeze time for food items placed directly on said at least one refrigerator shelf (this system is capable of this improvement), and for food items placed in direct contact with a stream of said cooling air flowing into said refrigeration apparatus interior from second ends of at said plurality of cooling tubes (air from right end of cooling conduits 6a and 6b), relative to freeze time which would exist for said food items in the absence of said cooling tube system (this system is capable of this improvement).

While Heo teaches a plurality of cooling conduits with in a barrier that can be used as a shelf, he fails to explicitly teach that the cooling tubes are part of the refrigerator shelf, for providing shelving support of food items placed on said at least one refrigerator shelf.

Lieberman explicitly teaches the concept of providing a cooling tube (36) that helps provide shelving support for a refrigerator shelf (explicitly shown in figs. 4 and 5), wherein chilled fluid is circulated therein (see abstract lines 9-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the cooling conduit system of Heo to include the cooling tubes as taught by Lieberman in order to provide consistent and superior cooling transfer efficiency (col. 2 lines 46-51).

Regarding claims 5 and 6, Heo as modified by Lieberman teach all the limitations of the claimed invention, but fail to explicitly teach an improved freeze time in the range of 5% to 20%. Since Heo as modified by Lieberman teach a cooling tube system comprising a refrigerator shelf (see above), and cooling is the inherent function of the invention, the cooling efficiency is altered to some extent between 1 and 100%. It would have been an obvious, matter of design choice to alter the cooling efficiency by 5 to 20%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding claims 7 and 8, Heo as modified by Lieberman teach all the limitations of the claimed invention, but fails to explicitly teach a gradient temperature improvement in a range of

5% and 25%. Since Heo as modified by Lieberman teach a cooling tube system comprising a refrigerator shelf (see above), and cooling is the inherent function of the invention, the cooling efficiency is altered to some extent between 1 and 100%. It would have been an obvious matter of design choice to alter the cooling efficiency by 5 to 25%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding claim 9, Lieberman teaches the limitation of wherein the cooling tubes are formed with a straight configuration (see fig. 5, straight portions of tube 36).

Regarding claim 10, Lieberman teaches the limitation of wherein the cooling tubes are formed with angle-cut configurations (see fig. 5, tubes disposed at a 180 degree angle).

Regarding claim 11, Lieberman teaches the limitation of wherein the cooling tubes comprise formed cooling tubes (see fig. 5, note that the existence of a tube in the apparatus inherently means they have been "formed").

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heo as modified by Lieberman as applied to claim 1 above and further in view of Yoon (US 6,062,037).

Heo as modified by Lieberman teach all the limitations of the claimed invention, but fail to teach the limitation of a cooling tube being formed with an air dam configuration. Yoon

explicitly teaches a cooling conduit formed with an air dam configuration (134 and 134b). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the cooling tubes of Heo as modified by Lieberman with the cooling conduit of Yoon, in order to prevent repeated on/off cycling of the refrigeration system, thus reducing the chance for refrigeration system malfunction.

Response to Arguments

5. Applicant's arguments with respect to claims 1 and 5-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Collins (US 2,473,508) discloses a freezer shelf construction; Locatelli (US 5,433,087) discloses a rack evaporator in refrigerators or freezers; Ruthishauser (US 3,115,019) discloses a refrigerated display case; and Young (US 1,855,082) discloses a means for wiring a building.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after


the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azim Rahim whose telephone number is 571-270-1998. The examiner can normally be reached on Monday - Thursday 5:30am - 3pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AR 1/23/2008


CHERYL TYLER
SUPERVISORY PATENT EXAMINER

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